AMENDMENTS TO THE CLAIMS

1-55. (cancelled).

56. (currently amended) A method for determining the geometry of a semi-rigid body element during a procedure, the method using an image data set having reference points for the body element, a relative position between said reference points of the semi-rigid body element being variable, the method comprising:

identifying, during the procedure, the relative position of each of the reference points for the semi-rigid body element;

deriving a transform relating the relative position of the reference points during the procedure to the relative position of the reference points in the image data set in order to determine the geometry of the body element during the procedure, said transform indicative of a difference between the relative position of each of the reference points for the semi-rigid body element during the procedure and the relative position of the reference points in the image data set;

modifying the image data set based on the transform in order to generate a displaced image data set representing the geometry of the body element during the procedure; and

generating a display based on the displaced image data set illustrating the geometry of the body element during the procedure.

57. (previously presented) The method of claim 56 wherein the semi-rigid body element is soft tissue.

4 ~~58.~~ (currently amended) A method for determining the geometry and position of a semi-rigid body element during a procedure, the method using a system including an array, and instrument in communication with the array, and a processor in communication with the array and storing an image data set having reference points for the body element, a relative position between said reference points of the semi-rigid body element being variable, the method comprising:

touching the reference points for the semi-rigid body element with the instrument during the procedure and communicating the position of the reference points to the array;

communicating the position of the reference points of the body element during the procedure to the processor;

determining the relative position of the reference points;

deriving a transform of the relative position of the reference points during the procedure to the relative position of the reference points in the image data set in order to determine the geometry and position of the body element during the procedure, said transform indicative of a difference between the relative position of each of the reference points for the semi-rigid body element during the procedure and the relative position of the reference points in the image data set;

E1 modifying the image data set based on the transform in order to generate a displaced image data set representing the geometry and position of the body element during the procedure; and

displaying the geometry and position of the body element during the procedure based on the displaced image data set.

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~~59.~~ (previously presented) The method of claim ~~58~~ wherein the semi-rigid body element is soft tissue.

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~~60.~~ (currently amended) A system for determining the geometry and position of a semi-rigid body element during a procedure, the system comprising:

an image data set of the body element, the image data set having reference points for the body element, a relative position between said reference points of the semi-rigid body element being variable;

an array of receivers;

an instrument in communication with the array, the instrument identifying the position of the reference points of the body element during the procedure;

a processor in communication with the array and storing the image data set, the processor programmed to modify the image data set based on the identified position of the reference points of the body element during the procedure and to generate a displaced image data set representing the geometry and position of the body element during the procedure, said processor transforming the image data set indicative of a difference between the relative position of each of the reference points for the semi-rigid body element during the procedure and the relative position of the reference points in the image data set; and

a display for displaying the geometry and position of the body element during the procedure based on the displaced image data set generated by the processor.

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~~61~~. (currently amended) A system for determining the geometry and position of a semi-rigid body element during a procedure, the system comprising:

an image data set of the body element, the image data set data points identifying a contour, said contour having a position and having contour reference points for the body element, a relative position between said reference points of the semi-rigid body element being variable;

an array of receivers;

a scanning probe in communication with the array, the scanning probe determining the contour of the body element during the procedure;

a processor in communication with the array and storing the image data set, the processor programmed to determine the position of the contour of the body element during the procedure and to compare the position of the contour of the body element to the position of the contour of the body element as represented by the image data set, the processor further programmed to modify the image data set based on the identified position of the contour of the body element during the procedure and to generate a displaced image data set representing the geometry and position of the body element during the procedure, said processor transforming the image data set indicative of a

difference between the relative position of each of the reference points for the semi-rigid body element during the procedure and the relative position of the reference points in the image data set; and

a display for displaying the geometry and position of the body element during the procedure based on the displaced image data set generated by the processor.

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62. (currently amended) A method for determining the geometry of a deformable body element during a procedure, the body element having reference points, the method comprising:

obtaining an image data set of the deformable body element, the data set including the reference points for the body element, a relative position between said reference points of the deformable body element being variable;

identifying the relative position of each of the reference points for the body element during the procedure;

deriving a transform relating the relative position of the reference points during the procedure to the relative position of the reference points in the image data set in order to determine the geometry of the body element during the procedure, said transform indicative of a difference between the relative position of each of the reference points for the semi-rigid body element during the procedure and the relative position of the reference points in the image data set;

modifying the image data set based on the transform in order to generate a displaced image data set representing the geometry of the body element during the procedure; and

generating a display based on the displaced image data set illustrating the geometry of the body element during the procedure.

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63. (previously presented) The method of claim 62 wherein the deformable body element is soft tissue.

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64. (currently amended) A system for use during a medical or surgical procedure on a body, said system generating a display representing the position and geometry of a

body element during the procedure based on scans taken of the body by a scanner prior to the procedure, the scan having reference points for the body element, a relative position between said reference points of the body element being variable, and based on a position of a projection of the body element prior to the procedure, said system comprising:

means for identifying, during the procedure, the position of the reference points of the body element wherein said identifying means comprises a reference array having a location outside the body for providing a reference, means for determining the position of the reference points of the body element relative to the reference array, and a fluoroscopic device for determining a position of a projection of the body element during the procedure;

a processor comparing the position of the projection of the body element during the procedure to the position of the projection of the body element prior to the procedure, said processor modifying the image data set according to the comparison of the projection during the procedure and the projection prior to the procedure and according to the identified position of the reference points during the procedure, as identified by the identifying means, said processor generating a displaced image data set representing the position and geometry of the body element during the procedure, said processor transforming the image data set indicative of a difference between the relative position of each of the reference points for the semi-rigid body element during the procedure and the relative position of the reference points in the image data set; and

a display utilizing the displaced image data set generated by the processor, illustrating the position and geometry of the body element during the procedure.

65. (previously presented) The system of claim 64 wherein the fluoroscopic device comprises a fluoroscopic tube in fixed relation to a fluoroscopic plate adapted so that the body element may be positioned therebetween for determining a position of a projection of the body element during the procedure and wherein the processor compares the position of the projection of the body element during the procedure to the position of the projection of the body element prior to the procedure.

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66. (previously presented) The system of claim 65 wherein said fluoroscopic tube or said fluoroscopic plate each have emitters thereon in communication with the reference array and wherein the determining means is adapted to determine the position of the tube and plate relative to the reference array whereby the position of the projection of the body element can be determined.

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67. (previously presented) The system of claim 65 wherein said reference array has emitters thereon in communication with the fluoroscopic tube or the fluoroscopic plate and wherein the determining means is adapted to determine the position of the tube or plate relative to the reference array whereby the position of the projection of the body element can be determined.

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68. (new) The method of claims 56 wherein deriving comprises deriving a transformation which allows the determination of the procedural position, orientation, and shape in surgical space of the semi-rigid body element, and wherein modifying comprises modifying the image data set according to said transformation to produce a displaced image data set reflecting changes in the geometry of the semi-rigid body elements during the procedure.

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69. (new) The method of claims 58 wherein deriving comprises deriving a transformation which allows the determination of the procedural position, orientation, and shape in surgical space of the semi-rigid body element, and wherein modifying comprises modifying the image data set according to said transformation to produce a displaced image data set reflecting changes in the geometry of the semi-rigid body elements during the procedure.

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70. (new) The method of claims 62 wherein deriving comprises deriving a transformation which allows the determination of the procedural position, orientation, and shape in surgical space of the semi-rigid body element, and wherein modifying comprises modifying the image data set according to said transformation to produce a

displaced image data set reflecting changes in the geometry of the semi-rigid body elements during the procedure.

71. (new) The system of claims 60 wherein the processor derives a transformation which allows the determination of the procedural position, orientation, and shape in surgical space of the semi-rigid body element, and wherein the processor modifies the image data set according to said transformation to produce a displaced image data set reflecting changes in the geometry of the semi-rigid body elements during the procedure.

72. (new) The system of claims 61 wherein the processor derives a transformation which allows the determination of the procedural position, orientation, and shape in surgical space of the semi-rigid body element, and wherein the processor modifies the image data set according to said transformation to produce a displaced image data set reflecting changes in the geometry of the semi-rigid body elements during the procedure.

73. (new) The system of claims 64 wherein the processor derives a transformation which allows the determination of the procedural position, orientation, and shape in surgical space of the semi-rigid body element, and wherein the processor modifies the image data set according to said transformation to produce a displaced image data set reflecting changes in the geometry of the semi-rigid body elements during the procedure.